

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
19 September 2002 (19.09.2002)

PCT

(10) International Publication Number
WO 02/072003 A3(51) International Patent Classification⁷: C07J 1/00,
5/00, A61K 31/568, 31/57, A61P 35/00

(21) International Application Number: PCT/SE02/00443

(22) International Filing Date: 11 March 2002 (11.03.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0100857-2 13 March 2001 (13.03.2001) SE

(71) Applicant and

(72) Inventor: HAGSTRÖM, Tomas [SE/SE]; Svartmåka
Gård, S-590 41 Rimforsa (SE).(74) Agent: STRÖM & GULLIKSSON IP AB; Sjöporten 4,
S-417 64 Göteborg (SE).(81) Designated States (national): AE, AG, AL, AM, AT (utility
model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility
model), DE, DK (utility model), DK, DM, DZ, EC, EE
(utility model), EE, ES, FI (utility model), FI, GB, GD, GE,
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,
LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,
MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD,
SE, SG, SI, SK (utility model), SK, SL, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR,
GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent
(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
20 February 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



WO 02/072003 A3

(54) Title: USE OF STEROID DERIVATIVES FOR THE TREATMENT OF A BENIGN AND/OR MALIGNANT TUMOUR

(57) Abstract: The present invention relates to steroid derivatives for use as medicaments. More specifically, the invention also relates to the use of a steroid derivative of 5-androstene-, 5-pregnenolone or corresponding saturated derivatives (androstane- or pregnane-) in the manufacture of a medicament for the treatment of a benign and/or malignant tumour, which medicament is capable of interrupting disturbances in Wnt-signaling, such as cell-cycle arrest in G1-phase, and/or providing an angiostatic effect. Examples of such steroid derivatives are Δ -5-androstene-17 α -ol, androstan-17 α -ol-pregnane-17 α -ol or pregnane-17 α -ol derivatives. In a further aspect, the invention relates to a method of producing a medicament for the treatment of a benign and/or malignant tumour and/or an inflammatory condition comprising the steps of contacting 5-androstan-3 β ,17 α -diol or androstan-3 β α -diol, an enzyme and a sulfotransferase to provide 5-androstan-17 α -ol-3 β -sulfate or corresponding androstan derivative (17 α -AEDS or 17-AADS); and mixing the 17 α -AEDS or 17 α -AADS so produced with a suitable carrier, whereby a medicament which is capable of acting as a ligand to perox-isome proliferator-activated receptor- γ (PPAR γ) is produced.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 02/00443

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: C07J 1/00, C07J 5/00, A61K 31/568, A61K 31/57, A61P 35/00
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: C07J, A61K, A61P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI DATA, EPO-INTERNAL, CHEM.ABS DATA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5912240 A (LORIA), 15 June 1999 (15.06.99) --	1-16
A	Journal of Endocrinology, Volume 150, 1996, D J Waxman: "Role of metabolism in the activation of dehydroepiandrosterone as a peroxisome proliferator", pages 129-147 -- -----	1-16

 Further documents are listed in the continuation of Box C. See patent family annex.

- * Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

10 Sept 2002

12 -09-2002

Name and mailing address of the ISA/
 Swedish Patent Office
 Box 5055, S-102 42 STOCKHOLM
 Facsimile No. + 46 8 666 02 86

Authorized officer
 ANNA SJÖLUND/EÖ
 Telephone No. + 46 8 782 25 00

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE02/00443

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: 7
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
see next sheet

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see next sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-16

Remark on Protest

The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE02/00443**Box I.2**

Present claim 7 relates to the use of steroid derivatives where the effect is defined by reference to a desirable characteristic or property, namely capability of interrupting disturbances of Wnt-signalling. The claims cover all compounds having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and / or disclosure within the meaning of Article 5 PCT for only a very limited number of such / compounds . In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to the compounds mentioned in the description and compounds covered by claims 1-5.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international examination report (Rule 66.1(e)PCT).

Box II

According to Article 34(3)(a-c) and Rule 13.2, an international application shall relate to one invention only or to a group of inventions linked by one or more of the same or corresponding "special technical features", i.e. features that define a contribution which each of the inventions makes over the prior art.

A search for this "special technical feature" among the claims of the present application did not reveal such a unifying, novel technical feature.

Accordingly, following inventions were found:

- 1) Steroid compounds according to claims 1-16 and their use in the treatment of benign/malignant tumours.
- 2) Use of the known compounds 17 α -AEDS eller 17 α -AADS according to claim 20 in the manufacture of a medicament, which attenuate the effect of ligands to PPAR- α , δ , γ , claims 17-19,24 partly, that refer to methods for producing a medicament with 17 α -AEDS or 17 α -AADS and medicaments /pharmaceutical compositions in claims 22-23 and 25-26 produced according to claims 17-19.
- 3) Use of the known compounds 17 α -AEDS eller 17 α -AADS according to claim 21 as an immunomodulator, claims 17-19,24 partly, that refer to methods for producing a medicament with 17 α -AEDS or 17 α -AADS and medicaments /pharmaceutical compositions in claims 22-23 and 25-26 produced according to claims 17-19.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 02/00443

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US. 5912240 A	15/06/99	US 2001014675 A	16/08/01